



SMART Conference 2000



Planning Guidelines for Simulation and Modeling for Acquisition, Requirements and Training

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Guidelines: What They Are

Provide insights, lessons learned, and recommendations on how to plan for SMART

Directed at:

- **Integrated Concept Teams**
- **Program Management Offices**
- **System Stakeholders (testers, analysts, logisticians, etc.)**

Expands upon existing guidelines to include SMART concepts, input from Subject Matter Experts



Guidelines: What They Are **Not**

No “one size fits all”, No checklist, No template

Not a primer on the fundamentals of M&S

Will not provide detailed understanding of technical issues (i.e. architectures, simulation interoperability, data schema, etc.)

Not an instructional text for Systems Engineering, Cost as an Independent Variable (CAIV), Integrated Product and



Elements of SMART

Collaborative Environments - enduring collection of SMEs supported by interoperable tools and databases, authoritative information sources and product/process models focused on a common endeavor

Distributive Product Description - distributed collection of interconnected product centric information including product data, product models, and process models (DARPA's Smart Enterprise Model)

M&S Standards and Reuse - Maximize Army's investment (multi-use threat models, common



Planning and Implementation

M&S is a tool to aid in decision making

Planning the use of M&S is dependent on:

**point along acquisition life cycle
legacy M&S tools (full or partial DPD)
level of involvement of system**

stakeholders

**Simulation Support Strategies must be tailored
to each concept evaluation or acquisition
program**

**Planning is most effective when conducted
through IPT process**



M&S Applied to SMART Functions

Combat Development - TRADOC requires Integrated Concept Teams to develop SSPs and ensure their transition to PMs at the appropriate Milestone

Design and Engineering - assess design proposals via virtual prototypes so changes are made when less costly

Logistics and Support - assess supportability implications as design is being developed to ensure affordable total ownership cost

Test and Evaluation - with use of M&S to support T&E, future systems can be tested more robustly within available budget



Special M&S Considerations

High Level Architecture - compliance required for all DOD simulations and simulators to ensure simulation interoperability

Using M&S to Stimulate C4I Systems - planning of interface methods, exercise control, data collection, terrain alignment, etc is required to cost effectively stimulate C4I needed for Army's goal of "train as you fight"

Synthetic Natural Environments -a common representation of the physical environment is critical to system of system development

Threat Representations - single, disciplined process to avoid duplicative, non-valid threat model development



VV&A and Configuration Management

Levels of VV&A

M&S Sponsor Responsibilities

Developer Responsibilities

V&V Responsibilities

Accreditation



Additional Analyses Supported by M&S



**Survivability/Lethality
Analysis -**

Analysis of Alternatives -

**Cost as an Independent
Variable -**

System of System Analysis -

Risk Management -



Additional Guidance

References and Support

Suggested SSP Format

Glossary and List of Acronyms

Web Sites

**The Living Document can be viewed at
<http://www.sarda.army.mil/ad/rdadomain>**